Jet Propulsion Laboratory
California Institute of Technology

"Meeting-in-Meeting"

On the Shoulders of Giants: Planets Beyond the Reach of Kepler

Organizer:

Steve Unwin

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Meeting-in-Meeting SOC

- Stephen Unwin (JPL, Chair)
- David Spergel (Princeton)
- Neil Gehrels (NASA GSFC)
- Scott Gaudi (OSU)
- Jeremy Kasdin (Princeton)
- David Bennett (Notre Dame)
- Bruce Macintosh (LLNL)
- Tom Greene (NASA Ames)

Meeting Description

What kind of planets lie at orbit radii of 1-2 AU - beyond the reach of Kepler? In the last two decades we have explored a sample of RV-detected planets, discovered distant planets with microlensing, and several hot young planets at large radii have been detected by direct imaging, as well as the debris disks that provide clues to formation and evolution. In these 4 sessions, we explore the near future, and how we can expect to learn much more about the demographics and properties of cold outer planets. AFTA-WFIRST will open up this area, with a microlensing survey to probe the population of long-orbit planets, and coronagraphy to take images and spectra of large planets in orbits at a few AU. NASA also has probe-scale mission concepts under study for direct imaging and spectroscopy of exoplanets.

Session Descriptions

- **Session I** *What we know today and what we would like to learn*
  - Introduction; current state of theoretical understanding of planets in long orbits - beyond the reach of Kepler
- **Session II** *Demographics*
  - Demographics of the exoplanet population, based on what we know from RV surveys, Kepler, and microlensing
- **Session III** *Ground-based Imaging and Spectroscopy*
  - Direct observation of exoplanets with imaging and spectroscopy, and what we learn from debris-disks around planet-bearing stars
- **Session IV** *The Near Future*
  - What we can expect to learn about this planet population in the near future. In addition to TESS and JWST under development, we also discuss the contributions of AFTA-WFIRST through microlensing and spectroscopy